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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,787	05/20/2002	Claudia Wiegand	MERCK 2341	5718
23599	7590	09/01/2004	EXAMINER	
MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201			OLSEN, ALLAN W	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 09/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/031,787	Applicant(s) WIEGAND ET AL.	
	Examiner Allan Olsen	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5 and 7-19 is/are pending in the application.
- 4a) Of the above claim(s) 8-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7 and 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 18 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The specification teaches a hydrofluoric acid content of 5-20%, however, there does not appear to be support for a composition comprising either 10 % or 15 % HF in combination with a solvent mixture consisting essentially of at least two of ethylene glycol, propylene glycol, ethanol, and glycerol.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,316,370 issued to Mercaldi et al. (hereinafter, Mercaldi).

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Mercaldi teaches a composition comprising a mixture of alcohols and hydrofluoric acid. Mercaldi teaches the alcohols may comprise glycerol, ethylene glycol, propylene glycol and ethanol or mixtures thereof, with ethylene and propylene glycols being especially preferred. Mercaldi teaches in a preferred embodiment a composition comprising alcohol, nitric acid and hydrofluoric acid. Mercaldi teaches an alcohol: nitric acid: hydrofluoric acid ratio of 10-50: 5-40: 1 which corresponds to Applicant's claimed composition with the claimed water content of 1-20% coming from the water content of nitric acid and hydrofluoric acid. See: abstract; column 3, line 45 – column 4, line 20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mercaldi.

The above noted teachings of Mercaldi are herein relied upon.

Mercaldi does not teach an alcohol mixing ratio of 1:5 to 5:1. Mercaldi does not teach using high purity components in the etching mixture.

Because Mercaldi teaches that the glycerol and ethylene glycol are functional equivalents and each can be used independently of the other, it would be obvious to use a 1:1 mixture of these polyols because "[i]t is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose."¹ It would be obvious to use high purity components so that the etching solution is not a source of contamination.

Claims 1, 4, 5, 7 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deckert.

Deckert teaches HF/glycerol and HF/ethylene glycol compositions. Deckert teaches preparing an etching solution by adding 100 mL of concentrated HF (49% HF by weight) to glycerol to make 1 liter of solution. Deckert teaches that this solution is 3M in HF. Therefore, the 1 L of prepared solution contains 3 moles of HF, which is about 60 grams of HF. Because a 49% HF solution has a density of 1.19 g/mL, the 100 mL of concentrated HF that Deckert adds to glycerol contributes 119 grams to the total mass of the solution. The balance of the solution is ~ 900 mL of glycerol which, given its density of 1.26 g/mL, would have a mass of about 1134 grams. These numbers (e.g., $60 \text{ g HF} / (119 + 1134) \approx 5\%$) provide for HF and H₂O concentrations that correspond to the claimed ranges.

Deckert does not teach mixing ethylene glycol and glycerol with a ratio of 1:5 to 5:1. Deckert does not teach using high purity components in the etching mixture.

It would have been obvious for one skilled in the art to make the etching solution of Deckert with a mixture of glycerol and ethylene glycol because "[i]t is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose."¹ Because glycerol and ethylene glycol can be used independently of the other, it would be obvious when using a mixture of these two equivalent components to first select a 1:1 mixing ratio. It would be obvious to use high purity components so that the etching solution is not a source of contamination.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deckert in view of US Patent 5,767,020 issued to Sakaguchi et al. (hereinafter, Sakaguchi).

The above noted teachings of Deckert are herein relied upon. Additionally, it is noted Deckert teaches that the concentration of the etching composition is not critical, and Deckert adds, in general a more concentrated solution provides a faster etch rates (column 3, lines 22-25). Furthermore, Deckert teaches that a criterion for selecting the organic component of the etchant is that the organic component must be compatible with the HF and water (column 3, lines 13-18).

Deckert does not teach a composition comprising 10-20% HF.

¹ *In re Kerkhoven* 205 USPQ 1069 (CCPA 1980). Cites *In re Susi* 169 USPQ 423, 426 (CCPA 1971); *In re Crockett* 126 USPQ 186, 188 (CCPA 1960). See also *Ex parte Quadranti* 25 USPQ 2d 1071 (BPAI 1992).

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Sakaguchi teaches an etching composition comprising a mixture of 5-95% HF and an alcohol.

It would have been obvious for one skilled in the art to increase the HF concentration to 15-20% HF because Deckert teaches that high concentrations provide higher etching rates and Sakaguchi demonstrates that alcohols are compatible with very high HF concentrations.

Response to Arguments

Applicant's arguments filed June 21, 2004 have been fully considered but they are not persuasive. With respect to Mercaldi, applicant argues:

"Mercaldi does not teach or suggest a solvent mixture comprising at least two solvents selected from ethylene glycol, propylene glycol, ethanol and glycerol".

With respect to the polyol component of the composition, applicant argues that Mercaldi constitutes a broad generic disclosure and that there is no specific embodiment or statement to suggest using a mixture of solvents as presently claimed. Applicant adds:

"in no way does the reference teach a specific solvent mixture", and,

"Mercaldi does not teach compositions having 1-20 % by weight water. In fact, the compositions of Mercaldi are all non-water based compositions. Mercaldi makes no mention of adding water as a solvent."

The examiner notes that claim 1 is directed to 11 possible solvent mixtures. Mercaldi teaches using a polyol or a mixture of polyols. Of the 15 specific polyols that are taught by Mercaldi, two are singled out as being especially preferred, specifically,

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ethylene glycol and propylene glycol (see claim 4 and column 4, lines 1-2). In view of Mercaldi's explicit teaching of a polyol mixture and Mercaldi's clear teaching that ethylene glycol and propylene glycol are the especially preferred polyols, the examiner is not persuaded that Mercaldi constitutes a broad generic disclosure with no specific embodiment or statement to suggest using a mixture of solvents as presently claimed.

Regarding applicant's contention that Mercaldi does not teach a composition comprising 1 % to 20 % water, the examiner notes that nitric acid generally includes 32 % water. Additionally, nitric acid is extraordinarily hygroscopic and there is no indication that Mercaldi requires extraordinary measures to exclude water. With regard to Mercaldi's statement that the invention is "preferably formulated to be a non-aqueous composition, that is a non-water based composition", the examiner notes that Mercaldi does not teach formulating anhydrous compositions, which would require the exclusion of water. By the phrase "a non-aqueous composition, that is a non-water based composition" the examiner understands Mercaldi to mean a composition having an organic solvent(s) as the major component.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Mills, can be reached on 571-272-1439.

The fax number for TC1700 is 703-872-9306 (non-after finals and after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1300.

Allan Olsen, Ph.D.
August 31, 2004

A handwritten signature in black ink, appearing to read "Allan Olsen". The signature is written in a cursive, flowing style with a large loop at the end.